

From: Hitzman, Murray
To: [Benjamin Simon](#); [Judy Nowakowski](#); [Applegate, David](#)
Subject: Re: Energy and Mineral Resources
Date: Tuesday, May 16, 2017 6:16:13 PM
Attachments: [Monuments - USGS energy and minerals annotations 5-16-17 \(1\).xlsx](#)

Benjamin

Of course as soon as I send the documents I get a correction (actually addition of more information for the table) from one of our group. So an amended table is attached.

all the best

murray

On Tue, May 16, 2017 at 6:03 PM, Hitzman, Murray <mhitzman@usgs.gov> wrote:

Ben

please see the attached memo, table, and map. I hope this will help you with your analysis.

best

murray

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NATIONAL MONUMENTS BEING INITIALLY REVIEWED PURSUANT TO EXECUTIVE ORDER 13792 (May 16, 2017)

	Monument	Location	Year(s)	Acreage	Oil and Gas	Coal	Gas Hydrates	Uranium	Geothermal	Historic Mining Activity	USGS Mineral Assessment	Energy Comments	Mineral Comments
1	Basin and Range	Nevada	2015	703,585	No Assessment	No Assessment	No Assessment	No Assessment		Yes	Part of the area assessed	Within area of medium geothermal favorability https://pubs.usgs.gov/fs/2008/3082/	https://pubs.er.usgs.gov/publication/b1728A
2	Bears Ears	Utah	2016	1,353,000		No Assessment	No Assessment		No Assessment	Yes	No assessment	Within 2 conv. AUs and 1 cont. AU, Paradox Basin Province (315 MMBO, 999 BCF, 18 MMBNGL) https://pubs.usgs.gov/fs/2012/3031/ . Area of historic uranium mining.	https://pubs.usgs.gov/circ/1952/0217/report.pdf
3	Berryessa Snow Mountain	California	2015	330,780	No Assessment	No Assessment	No Assessment	No Assessment		Yes	Part of the area assessed	Within area of medium-to-high geothermal favorability https://pubs.usgs.gov/fs/2008/3082/	Partially covered by Wilderness Study Area assessment Black Butte and Elk Creek Roadless Areas (https://pubs.er.usgs.gov/publication/pp13001)
4	Canyons of the Ancients	Colorado	2000	175,160		No assessment	No assessment	No assessment	No assessment	Yes	No assessment	Within 3 conv. AUs and 1 cont. AU, Paradox Basin Province (335 MMBO, 1035 BCF, 34 MMBNGL) https://pubs.usgs.gov/fs/2012/3031/	https://pubs.usgs.gov/pp/0481/report.pdf
5	Carrizo Plain	California	2001	204,107	No assessment	No assessment	No assessment	No assessment	No assessment	No	Part of the area assessed	Adjacent to Monterey Formation, San Joaquin Basin Province (21 MMBO, 27 BCF) https://pubs.er.usgs.gov/publication/fs20153058 ; two producing oil and gas fields in the monument, Carrizo Plain National Monument Approved Resource Management Plan and Record of Decision, April 2010, Bureau of Land Management.	https://pubs.er.usgs.gov/publication/mr88 ; Caliente Mountain Wilderness study area (https://pubs.usgs.gov/of/1990/0096/report.pdf)
6	Cascade Siskiyou	Oregon	2000/2017	100,000	No assessment	No assessment	No assessment	No assessment		No	Area assessed	Adjacent to area of high geothermal favorability to immediate east https://pubs.usgs.gov/fs/2008/3082/	https://pubs.usgs.gov/publication/b1744C https://pubs.usgs.gov/circ/1986/0976/report.pdf . 1by2 degree sheet min assessment
7	Craters of the Moon	Idaho	1924/2000	737,525	No assessment	No assessment	No assessment	No assessment	No assessment	No	Area assessed	Energy - No relevant assessments;	https://pubs.usgs.gov/mf/1462-B/ ; https://pubs.er.usgs.gov/publication/sir20165089
8	Giant Sequoia	California	2000	327,760	No assessment	No assessment	No assessment	No assessment	No assessment	No	Part of the area assessed	Energy - No relevant assessments;	Mineral resource assessment map of California (https://pubs.usgs.gov/publication/mr88); Partially covered by Wilderness Study Area assessment Kings River, Rancheria, Agnew, and Oat Mountain Roadless Areas (https://pubs.er.usgs.gov/publication/pp13001); https://pubs.er.usgs.gov/publication/mr88 ;
9	Gold Butte	Nevada	2016	296,937	No assessment	No assessment	No assessment	No assessment	No assessment	Yes	Part of the area assessed	Energy - No relevant assessments;	https://pubs.usgs.gov/sir/2006/5197/sir2006-5197c.pdf
10	Grand Canyon-Parashant	Arizona	2000	1,014,000	No assessment	No assessment	No assessment			Yes	Area assessed	Within Northwestern Arizona Uranium Area, Colorado Plateau Province (3950 MM pounds) https://pubs.usgs.gov/sir/2012/5239/ . Adjacent to area with med-high geothermal favorability.	https://pubs.er.usgs.gov/publication/70177936 https://pubs.usgs.gov/bul/0580d/report.pdf and https://pubs.usgs.gov/bul/1747b/report.pdf
11	Grand Staircase-Escalante	Utah	1996	1,700,000			No assessment		No assessment	Yes	Part of the area assessed	Within Kaiparowitz Plateau Coalbed Gas AU/Coal AU Paradox Basin (450 BCF; 16 MMST coal) https://pubs.usgs.gov/fs/2012/3031/ . Possible uranium resource.	Wahweap, Paria-Hackberry, Cockscomb Wilderness Study Areas (https://pubs.usgs.gov/bul/1748a/report.pdf) and Steep Creek (https://pubs.usgs.gov/bul/1747b/report.pdf) Wilderness Study Areas.
12	Hanford Reach	Washington	2000	194,451	No assessment	No assessment	No assessment	No assessment	No assessment	No	No assessment	Energy - No relevant assessments;	No relevant assessments
13	Ironwood Forest	Arizona	2000	128,917	No assessment	No assessment	No assessment	No assessment	No assessment	Yes	Part of the area assessed	Energy - No relevant assessments;	https://pubs.usgs.gov/bul/1702h/report.pdf
14	Mojave Trails	California	2016	1,600,000	No assessment	No assessment	No assessment	No assessment	No assessment	Yes	Part of the area assessed	Energy - No relevant assessments;	https://pubs.er.usgs.gov/publication/mr888 ; Chemehuevi Mountains https://pubs.er.usgs.gov/publication/ofr87586 , https://pubs.er.usgs.gov/publication/mf1584A . Sheep Hole Mountains https://pubs.er.usgs.gov/publication/ofr82957 . Turtle Mountains https://pubs.er.usgs.gov/publication/17138 . Morongo https://pubs.er.usgs.gov/publication/b17138 . East Mojave National Scenic Area https://pubs.er.usgs.gov/publication/b2160
15	Organ Mountains-Desert Peaks	New Mexico	2014	496,330	No assessment	No assessment	No assessment	No assessment		Yes	Part of the area assessed	Within area interspersed with medium-to-high geothermal favorability https://pubs.usgs.gov/fs/2008/3082/	Monument includes Organ Mountains WSA (https://pubs.usgs.gov/bul/1735d/report.pdf), Aden Lava Flow WSA (https://pubs.usgs.gov/bul/1735b/report.pdf), and Luna County assessment (https://geoinfo.nmt.edu/publications/openfile/downloads/400-499/459/LUNA.pdf)
16	Rio Grande del Norte	New Mexico	2013	242,555			No assessment	No assessment		Yes	No assessment	Adjacent to Raton Basin Coalbed Province (2350 BCF and 28 MMBNGL) https://pubs.usgs.gov/dds/dds-069/dds-069-n/REPORTS/69_N_CH_2.pdf . Med-high geothermal.	https://geoinfo.nmt.edu/staff/mclemore/documents/McLemore_Mullen.pdf
17	Sand to Snow	California	2016	154,000	No assessment	No assessment	No assessment	No assessment		Yes	Part of the area assessed	Adjacent to Monterey Formation, Los Angeles Basin Province (13 MMBO, 22 BCF) https://pubs.er.usgs.gov/publication/fs20163036	Partially covered by Wilderness Study Area assessment Sheep Mountain Wilderness Study Area and Cucamonga Wilderness and Additions (https://pubs.er.usgs.gov/publication/pp13001)
18	San Gabriel Mountains	California	2014	346,177		No assessment	No assessment	No assessment	No assessment	Yes	Part of the area assessed	Situated north of high geothermal favorability; https://pubs.usgs.gov/fs/2008/3082/	Partially covered by Wilderness Study Area assessment Sheep Mountain Wilderness Study Area and Cucamonga Wilderness and Additions (https://pubs.er.usgs.gov/publication/pp13001); https://pubs.er.usgs.gov/publication/mr88 ;
19	Sonoran Desert	Arizona	2001	486,149	No assessment	No assessment	No assessment	No assessment		Yes	Part of the area assessed	Adjacent to Monterey Formation, Los Angeles Basin Province (13 MMBO, 22 BCF) https://pubs.er.usgs.gov/publication/fs20163036	Partially covered by Wilderness Study Area assessment Sheep Mountain Wilderness Study Area and Cucamonga Wilderness and Additions (https://pubs.er.usgs.gov/publication/pp13001)
20	Upper Missouri River Breaks	Montana	2001	377,346		No assessment	No assessment	No assessment	No assessment	Yes	Part of the area assessed	Within North Central Montana Province (biogenic gas; 6 BCF) https://pubs.usgs.gov/fs/2008/3036/pdf/FS08-3036_508.pdf ; Upper Missouri River Breaks National Monument, Record of Decision and Approved Resource Management Plan, December 2008, Bureau of Land Management.	https://pubs.usgs.gov/bul/1722c/report.pdf ; https://pubs.er.usgs.gov/publication/ofr791204 ; https://pubs.usgs.gov/bul/1722a/report.pdf
21	Vermilion Cliffs	Arizona	2000	279,568	No assessment	No assessment	No assessment	No assessment	No assessment	Yes	Area assessed	Energy - No relevant assessments;	Wilderness Study Area mineral assessment https://pubs.er.usgs.gov/publication/mf1475D
22	Katahdin Woods and Waters	Maine	2016	87,563	No assessment	No assessment	No assessment	No assessment	No assessment	No	No assessment	Energy - No relevant assessments;	No Mineral Resource Data Record files nor USGS mineral resource assessment reports in Monument area



Monument area within USGS Energy Assessment Unit (AU), has historic U mining activity, has geothermal potential, or has historic mining activity and has assessed mineral potential

Monument area adjacent to USGS Energy Assessment Unit (AU), has possible U resources, or is near area of geothermal potential

Additional resources:

Map of unconventional resources of the U.S. <https://pubs.usgs.gov/dds/dds-069/dds-069-ii/>

Map of coalbed gas resources of the U.S. <https://pubs.usgs.gov/dds/dds-069/dds-069-ii/>

Critical Analysis of World Uranium Resources <https://pubs.usgs.gov/sir/2012/5239/>

Assessment of Moderate- and High-Temperature Geothermal Resources of the United States <https://pubs.usgs.gov/fs/2008/3082/>